UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte JOSEPH RAYMOND FARYNIARZ,
PHILIP EDWARD MINER, MICHAEL CHARLES CHENEY, and
JOANNA HONG ZHANG

Appeal 2007-0535
Application 10/601,731
Technology Center 1600

Decided: September 25, 2007

Before ERIC GRIMES, LORA M. GREEN, and NANCY J. LINCK,
Administrative Patent Judges.

GRIMES, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a cosmetic composition. The Examiner has rejected the claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

BACKGROUND

The Specification describes a cosmetic composition including: "(i) from about 0.0001 to about 30% by weight of a salt of malonic acid;

[and] (ii) from about 1 to about 99.9% by weight of a cosmetically acceptable carrier; wherein the composition exhibits a Flexibility Value greater than 1 in the Porcine Skin Test" (Specification 4). The Specification states that malonate salts "impart to the composition a positive Flexibility Value of at least 1, preferably at least 1.1 relative to water in the Porcine Skin Test" (*id.* at 5).

The Specification also states that "[m]alonate salts may either be the half or fully neutralized malonic acid or combinations thereof as represented by general formulas (I) and (II):

I II

wherein X is a cationic counterion" (*id.* at 5-6). "When mixtures are present the molar ratio of mono-salt I to di-salt II may range from about 1000:1 to about 1:1000" (*id.* at 7).

DISCUSSION

1. CLAIMS

Claims 1 and 3-16 are pending and on appeal. The claims have not been argued separately[1] and therefore stand or fall together. 37 C.F.R. § 41.37(c)(1)(vii). We will focus on claim 1, the broadest claim on appeal, which reads as follows:

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[1] In traversing the second rejection discussed below, Appellants include a sentence relating to claim 6. To the extent that this constitutes a separate argument, we address this argument below.

1. A cosmetic composition comprising:
(i) from about 0.0001 to about 30% by weight of a salt of malonic acid which is present as a half neutralized and fully neutralized acid in a molar ratio ranging from about 1000:1 to about 1:1000, respectively;
(ii) from about 1 to about 99.9% by weight of a cosmetically acceptable carrier; wherein the composition exhibits a Flexibility Value greater than 1 in the Porcine Skin Test.

2. PRIOR ART

The Examiner relies on the following references:

Jokura	5,641,495	Jun. 24, 1997
Beerse	WO 00/61107	Oct. 19, 2000

3. OBVIOUSNESS OVER JOKURA

Claims 1 and 3-16 stand rejected under 35 U.S.C. § 103 as obvious over Jokura. The Examiner finds that "Jokura teaches a skin cosmetic . . . having an excellent moisturizing effect comprising: (A) a ceramide or a pseudoceramide; (B) a dicarboxylic acid; and (C) a salt of a dicarboxylic acid," including malonic acid; that the "dicarboxylic acid salts may be added in the form of a salt" or "an acid may be added followed by the addition of an alkali (sodium hydroxide, etc.) to thereby form the aimed salt via *neutralization* in the system"; "that the content of components (B) and (C), falls within a range of from 0.01 to 20% by weight"; "that the molar ratio of the components (B) to (C) falls within a range of from 1/9 to 9/1"; and that, "[w]hen water, ethanol and/or water-soluble polyhydric alcohols are employed as the carrier, the content is preferably from 0.01 to 95% by weight" (Answer 3-4).

The Examiner also finds that the "free acid, partially neutralized acid, and fully neutralized acid, exist in solution in equilibrium with one another, with the concentration of the different forms being governed by the individual K_a of each neutralization reaction" (*id.* at 10). In addition, the Examiner finds that "the ratio of partially neutralized acid to fully neutralized acid will be dependent upon the concentration of H^+ in solution. In other words, the ratio of partially neutralized to fully neutralized acid is governed by the pH of the solution." (*Id.* at 11.) Thus, the Examiner concludes that "solutions having the same pH should have the same or similar ratios of partially neutralized to fully neutralized salts" (*id.*).

In addition, the Examiner finds that "Jokura teaches regulating the pH value of the skin cosmetic . . . to pH 3 to 10, . . . to avoid the irritation observed at a pH value less than 3 or exceeding 10" (*id.* at 4). The Examiner also finds that "the composition [of claim 1] must have a pH that is suitable for application to the skin" and, therefore, must have a pH in the non-irritating range taught by Jokura (*id.* at 12). The Examiner concludes that, "although [Jokura] does not expressly disclose the manipulation of the partial to fully neutral[ized] acid salt itself, this step is *implicit* when the pH of the composition is adjusted" (*id.*)

Finally, the Examiner finds that "Jokura's composition will implicitly have a Flexibility value of greater than 1 since the instant disclosure on page 5 states that malonate salts impart the flexibility value to the composition" (*id.* at 5). In addition, the Examiner finds that Jokura "teaches the same malonic acid salt in the same weight percent. Therefore, [Jokura's]

composition and the instant composition . . . will exhibit the same property, i.e. the instant flexibility value." (*Id.*)

We agree that the Examiner has set forth a prima facie case that the composition of claim 1 would have been obvious. Jokura describes a skin cosmetic comprising a ceramide or pseudoceramide, a dicarboxylic acid, and a salt of a dicarboxylic acid (Jokura, col. 2, ll. 6-39), and specifically identifies malonic acid as an example of a dicarboxylic acid (*id.* at col. 3, ll. 33-37). Jokura states that preferably "the total content of [the dicarboxylic acid] and [dicarboxylic acid salt], in terms of the acid, in the skin cosmetic . . . falls within a range of from 0.01 to 20% by weight" and "the molar ratio of the [dicarboxylic acid] to [dicarboxylic acid salt] falls within a range of from 1/9 to 9/1" (*id.* at col. 3, ll. 51-60). Jokura also describes including water, ethanol, or water-soluble polyhydric alcohols as a base and that the preferred content of these components in the skin cosmetic "ranges from 0.01 to 95% by weight" (*id.* at col. 4, ll. 16-34).

As discussed above, the Specification states that malonate salts "impart to the composition a positive Flexibility Value of at least 1, preferably at least 1.1 relative to water in the Porcine Skin Test" (Specification 5). Thus, we agree that the Examiner has set forth a prima facie case that the compositions of Jokura that contain malonic acid salt as the dicarboxylic acid salt would exhibit a Flexibility Value greater than 1.

Jokura does not state that malonic acid is present as a half neutralized acid and as a fully neutralized acid in a molar ratio ranging from about 1000:1 to about 1:1000, respectively. However, Jokura describes regulating

"the pH value of the skin cosmetic . . . to pH 3 to 10, still [more] preferably to pH 3 to 9" (Jokura, col. 3, ll. 60-65).

The Examiner takes the position that Appellants' cosmetic composition, which has the claimed molar ratio, has a pH close to or within the pH range described in Jokura (Answer 12). This position, which is not rebutted by Appellants, appears to be reasonable based on the teaching in Jokura that compositions having "a pH value less than 3 or exceeding 10" would be irritating to the skin (Jokura, col. 3, ll. 63-65). In addition, the Examiner has asserted that "the ratio of partially neutralized acid to fully neutralized acid will be dependent upon the concentration of H^+ in solution" and that therefore "solutions having the same pH should have the same or similar ratios of partially neutralized to fully neutralized salts" (Answer 11). The Examiner has supported these assertions with scientific reasoning (*id.* at 9-11). Thus, we agree that the Examiner has set forth a prima facie case that the broad molar ratio recited in claim 1 would have been obvious based on the teachings of Jokura.

Appellants argue that Jokura "discloses the unneutralized acid (component B) and the partially neutralized acid (component C). The free acid can only co-exist with a partially neutralized salt because of pKa considerations. There is thus no disclosure of a fully neutralized malonic acid." (Br. 8.) In particular, Appellants argue that "[a]ddition of a neutralizing agent to the free malonic acid would achieve mixtures of free and mono-salts (half neutralized). There would be no di-salt (fully neutralized) malonate present in a system that also included totally non-neutralized ('free') malonic acid." (*Id.*) In addition, Appellants argue:

> With the required full presence of dicarboxylic acid form, the skilled chemist reading this reference would not be motivated to neutralize to any extent that does not involve the presence of acid form. . . . Hence there can be no motivation to the skilled chemist to achieve a mixed mono- and di-salt. This chemist would know that free acid according to Jokura must be present and such cannot occur with any di-salt in the formula.

(*Id.* at 9.)

We are not persuaded by this argument. We find that the Examiner has set forth adequate scientific reasoning to support the conclusion that Jokura discloses mixtures of partially and fully neutralized acid.

In particular, the Examiner reasons that the "free acid, partially neutralized acid, and fully neutralized acid, exist in solution in equilibrium with one another, with the concentration of the different forms being governed by the individual K_a of each neutralization reaction" (Answer 10). In support of this position, the Examiner points to equilibrium equations that are well known in the art, as evidenced by the attached excerpt from a chemistry textbook.[2] These equations support the Examiner's conclusion that malonic acid, at pHs in the range disclosed by Jokura, provides a solution containing "fully neutralized acid" and "partially neutralized acid" in equilibrium with one another ("fully neutralized acid"/"partially neutralized acid" = $K_{a2}/[H^+]$) and "partially neutralized acid" and "free acid" in equilibrium with one another ("partially neutralized acid"/"free acid" = $K_{a1}/[H^+]$) and therefore provides a solution containing "fully neutralized acid," "partially neutralized acid," and "free acid."

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[2] Ronald J. Gillespie et al., *Chemistry* 516-520, 524-525, & 550-551 (1986) (copy attached).

Appellants also argue that "Jokura has but a single reference to malonic acid" and that this reference is in a list that includes seven other acids (Br. 7). In addition, Appellants argue that "even here the reference mishandles the structure" in that the "'X' of malonic [acid] is 'CH_2' instead of the specified 'CH_3'" (*id.*). Appellants also argue that "none of the Examples utilize malonic acid. The only exemplified dicarboxylic acid is succinic" and that "[e]ven the exemplification of succinic acid does not disclose the half neutralized acid salt, i.e. sodium or potassium hydrogen succinate" (*id.*). Thus, Appellants argue that Jokura's examples "obscure and . . . even teach away from the half neutralized salt" (*id.*).

We are not persuaded by these arguments. First, we agree with the Examiner that Jokura specifically teaches malonic acid. That Jokura misidentifies the X group in malonic acid as CH_3 rather than CH_2 does not detract from the clear recitation of malonic acid. One of ordinary skill in the art is well aware of the structure of malonic acid. In addition, that malonic acid is not included in any of the examples does not detract from the clear teaching of malonic acid.

In addition, we do not agree that Jokura's examples "obscure and . . . even teach away from the half neutralized salt" (Br. 7). Although Example 1, for instance, describes compositions comprising succinic acid and either potassium succinate trihydrate or sodium succinate, it is clear that this refers to what was added to form the compositions. As with malonic acid, once these components are added to water, the composition would include both the fully and half neutralized acids, as well as succinic acid, in

equilibrium. Thus, we do not agree with Appellants that the examples teach away from the half neutralized acid.

In addition, Appellants argue:

> Experiments have been performed via a Porcine Skin Test described in Example 9. Under Table VIII, it is seen that malonate salts are much better than glycolate or succinate salts with respect to improving skin flexibility (softness and suppleness). These results were surprising. Glycolates which are alpha-hydroxycarboxylic acids are well known to improve the flexibility of skin. *Non-hydroxy*carboxylic acids such as malonic have not received very much attention and are not particularly known for having any special skin activity. It was surprising to observe that the malonate was substantially better than the glycolate salt. Even more interesting was that succinate (malonic acid with one extra methylene group) did not perform well. Anyone skilled in the art would neither have expected nor selected malonates over succinates in considering the Jokura reference.

(Br. 7-8.)

We agree with the Examiner that these experiments do not overcome the Examiner's prima facie case of obviousness. In particular, we agree with the Examiner that the experiments in Example 9, which demonstrate the Flexibility Value exhibited by an unidentified amount of dimethylethanolammonium malonate, do not provide evidence that is commensurate with the scope of claim 1. As noted by the Examiner, "[i]t is unclear if the same flexibility is imparted by the entire genus since the term salt is extremely broad and amine salts are known to have specific properties themselves" (Answer 13). As also noted by the Examiner, Example 9

"compares glycolic acid[3] and succinic acid that has been neutralized with ammonium salt with malonic acid which has been neutralized with dimethylethanolammonium salt" and does not set forth the concentrations of the acid salts (*id.* at 14). We agree with the Examiner that it is not clear whether the different results can be attributed to the presence of malonic acid salt as opposed to glycolic or succinic acid salts or can be attributed to the different counterions or to different salt concentrations.

In addition, Appellants have not presented any evidence that the results of the experiments presented in Example 9 would have been unexpected. Instead, Appellants rely on attorney argument to characterize these results as unexpected. However, attorney argument is not evidence. "[I]t is well settled that unexpected results must be established by factual evidence. 'Mere argument . . . does not suffice.'" *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (quoting *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984)).

Appellants also argue:

> The skilled chemist in reading Jokura et al. would be led to utilize or at least test succinate. Malonates would certainly not be an initial choice. Upon testing the succinate, the skilled chemist would be dissuaded from trying the malonate upon

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[3] We additionally note that glycolic acid is not a dicarboxylic acid, as required by Jokura. Thus, comparing malonic acid salt to glycolic acid salt does not provide evidence that the composition of claim 1 has unexpected properties as compared to the teachings of Jokura. "Although it is well settled that comparative test data showing an unexpected result will rebut a prima facie case of obviousness, the comparative testing must be between the claimed invention and the closest prior art." *In re Fenn*, 639 F.2d 762, 765 (CCPA 1981).

> finding a relatively poor performance in a skin evaluation such as the claimed Porcine Skin Test. In certain ways Jokura et al. could be said to lead the skilled chemist away from using malonate by highlighting inferior performing dicarboxylic acids or salts.

(Br. 10.)

We are not persuaded by this argument. Prima facie obviousness does not require prior art references to recognize or even suggest the problem that Appellants attempted to solve. *In re Dillon*, 919 F.2d 688, 692-93 (Fed. Cir. 1990 (en banc)). In making his prima facie case of obviousness, the Examiner is not arguing that it would have been obvious that malonic acid salts would provide a Flexibility Value greater than 1. Instead, the Examiner is arguing that Jokura describes including malonic acid salts in a cosmetic composition to achieve the benefits set forth in Jokura, and that this composition would inherently have a Flexibility Value greater than 1. Thus, we do not agree that Jokura teaches away from using a malonic acid salt. Instead, we agree that the Examiner has set forth a prima facie case that one of ordinary skill in the art would have been motivated to form a composition within claim 1 in order to provide the "excellent moisturizing effect" described in Jokura (Jokura, col. 1, ll. 7-11) and that this composition would inherently exhibit a Flexibility Value greater than 1.

We conclude that the Examiner has set forth a prima facie case that claim 1 would have been obvious over Jokura, which Appellants have not rebutted. We therefore affirm the rejection of claim 1 under 35 U.S.C. § 103. Claims 3-16 fall with claim 1.

4. OBVIOUSNESS OVER BEERSE

Claims 1, 3, 4, 6-9, 11-13, and 15 stand rejected under 35 U.S.C. § 103 as obvious over Beerse. The Examiner finds that "Beerse discloses an antimicrobial wipe that is impregnated with an antimicrobial cleansing composition"; that "example 14 discloses a composition comprising 3.20% sodium malonate, additional components, and the balance water (84.03% of the carrier)"; that the "wipe is suitable for application to the human skin to remove oil and dirt" and "is useful for treatment of acne and improvement of skin appearance[,] . . . includ[ing] providing a smoother and more even appearance of the skin and regulating the signs of aging." (Answer 5-6.) The Examiner also finds that Beerse teaches including a "proton donating agent selected from acids such as glycolic, citric, malonic, etc. in an amount of 0.1-10%"; that "the acid remains at least in a partially undissociated form"; and that "the pH should be 3-6" (*id.* at 6).

In addition, the Examiner finds that a composition having the molar ratio of claim 1 would have been obvious over Beerse for substantially the same reasons as with Jokura (*id.* at 6-7 and 15-18). The Examiner also finds that Beerse's composition will implicitly have a Flexibility Value greater than 1 for substantially the same reasons as with Jokura (*id.* at 7).

We agree that the Examiner has set forth a prima facie case that the composition of claim 1 would have been obvious. Beerse describes "an antimicrobial wipe comprising a porous or absorbent sheet impregnated with an antimicrobial cleansing composition" (Beerse 4). The cleansing composition comprises an antimicrobial active, an anionic surfactant, a proton donating agent (from about 0.1 to about 10% by weight), and water

(from about 3 to about 99.85% by weight) and "is adjusted to a pH of from about 3.0 to about 6.0" (*id.*). Beerse states that the composition is "suitable for application to the human skin for the purpose of removing dirt, oil and the like" and "can also be useful for treatment of acne" and "for providing an essentially immediate (i.e., acute) visual improvement in skin appearance following application of the composition to the skin," including regulating "discontinuities associated with skin aging" (*id.* at 4-5).

Beers defines a "proton donating agent" as "any acid compound or mixture thereof, which results in undissociated acid on the skin after use" (*id.* at 18). As a proton donating agent, Beerse describes organic acids, such as malonic acid (*id.* at 19). In Example 14, Beerse describes a composition comprising 4% malonic acid and 3.2% sodium malonate in water (*id.* at 36). We agree that the Examiner has set forth a prima facie case that the broad molar ratio recited in claim 1 would have been obvious based on the teachings of Beerse and that the compositions of Beerse that contain malonic acid as the proton donating agent would exhibit a Flexibility Value greater than 1 for substantially the same reasons as with Jokura.

Appellants argue that "Beerse does not disclose a half neutralized salt of malonic acid. There is reference to only *one* malonate salt mentioned. It is not known whether the 'sodium malonate' is meant to be disodium malonate (fully neutralized) or sodium hydrogen malonate (half neutralized) variant." (Br. 11.)

We are not persuaded by this argument. For the reasons discussed above (*supra,* at pp. 6-7), whether "sodium malonate" refers to the fully neutralized salt or the half neutralized salt, once this component is added to

water, both the fully neutralized acid and the half neutralized acid would be present in equilibrium.

Appellants also argue:

> Malonic acid is present as a proton donating agent. This means it is selected simply because it is an acid rather than for any special aspect of the organic radical. . . . Thus, those skilled in the art would not be led to utilize malonates for the presently claimed purpose of controlling signs of aging such as improving skin softness, suppleness and flexibility. Present method claim 6 specifically focuses upon controlling the signs of aging through use of certain malonate salt combinations. Composition claim 1 inherently recites [the] functionality of controlling signs of aging through [the] requirement of a Flexibility Value greater than 1 in the Porcine Skin Test.

(Br. 11.)

We are not persuaded by this argument. Prima facie obviousness does not require prior art references to recognize or even suggest the problem that Appellants attempted to solve. *In re Dillon*, 919 F.2d at 692-93. In making his prima facie case of obviousness, the Examiner is not arguing that it would have been obvious that malonic acid salts would provide a Flexibility Value greater than 1. Instead, the Examiner is arguing that Beerse describes including malonic acid salts in a composition to achieve the benefits set forth in Beerse, and that this composition would inherently have a Flexibility Value greater than 1. We agree with the Examiner that this is sufficient to provide a prima facie case of obviousness.

Claim 6 is an independent claim directed to a method for controlling signs of aging comprising applying the same cosmetic composition as recited in claim 1 to the skin. Beerse describes applying its composition to the skin (Beerse 4). In fact, Beerse describes applying its composition to

regulate "discontinuities associated with skin aging" (*id.* at 4-5). Thus, we agree that the Examiner has set forth a prima facie case that the method of claim 6 would have been obvious.

In addition, Appellants argue that Beerse "requires a proton donating agent which at least in part must have unneutralized acid functionality, e.g., malonic acid. A mono-salt (half neutralized) of malonic can coexist with the di-acid form (unneutralized). What is not possible is that all three species, free acid, mono-salt (half neutralized) and di-salt (fully neutralized), would coexist together." (Br. 11.) We are not persuaded by this argument for the reasons discussed above with regard to Jokura.

Appellants also argue:

> Selection of malonate salt mixtures for purposes of controlling the signs of aging is an unobvious selection. This is particularly so in contrast to the next closest homolog, i.e. succinate salts. Beerse et al. in Example 2 and 5 disclose a succinic acid/sodium succinate combination. Appellant has demonstrated in the specification under Example 9 that the malonate salt mixture gave a substantially better Flexibility Value in the Porcine Skin Test, compare 1.36 to 0.85 on Flexibility Value.

(Br. 12.) For the reasons discussed above with regard to Jokura (*supra*, at pp. 9-10), we do not agree that Appellants have provided sufficient evidence of unexpected results to rebut the Examiner's prima facie case of obviousness.

We conclude that the Examiner has set forth a prima facie case that claims 1 and 6 would have been obvious over Beerse, which Appellants have not rebutted. We therefore affirm the rejection of claims 1 and 6 under 35 U.S.C. § 103. Claims 3, 4, 7-9, 11-13, and 15 fall with claims 1 and 6.

OTHER ISSUES

In Example 4, Beerse describes a composition having a pH of 3.9 that comprises 4% malonic acid and 3.2% sodium malonate in water. If prosecution of this application is continued, the Examiner should consider whether this composition anticipates any of the claims.

SUMMARY

The Examiner's position is supported by the preponderance of the evidence of record. We therefore affirm the rejection of claims 1 and 3-16 under 35 U.S.C. § 103 over Jokura and the rejection of claims 1, 3, 4, 6-9, 11-13, and 15 under 35 U.S.C. § 103 over Beerse.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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